CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN DIEGO REGION

Staff Report for Item No.

Tentative Order No. R9-2003-0003

Waste Discharge Requirements for Closure and Post-Closure Maintenance of the County of San Diego, San Marcos Landfill

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1. INTRODUCTION

The San Marcos Landfill is a municipal solid waste (MSW) landfill (Class III waste management unit) that ceased receiving waste on March 11, 1997. The facility is subject to both the State (California Code of Regulations – Title 27 [27 CCR]) and Federal (Code of Federal Regulations – Title 40, Part 258 [40 CFR 258]) requirements regulating municipal solid waste landfills. In 1993, the State Water Resources Control Board (SWRCB) adopted Resolution No. 93-62. This Resolution requires each Regional Board to implement waste discharge requirements (WDRs) for discharges at MSW landfills under both the Chapter 15 (now in 27 CCR) and those applicable provisions of 40 CFR 258 MSW regulations that are necessary to protect water quality.

On August 16, 1993, the California Regional Water Quality Control Board – San Diego Region adopted General Order 93-86: "Waste Discharge Requirement Amendment for all MSW Landfills in this Region, to Implement State Water Board Resolution No. 93-62, adopted June 17, 1993," as State Policy for Water Quality Control under Section 13140 of the Water Code." This interim measure was taken to ensure that all active MSW landfills would be required to comply with the existing Federal requirements for MSW landfills. As the Regional Board revises WDRs for each active MSW landfill, the existing State and Federal requirements are incorporated into the new Order. The revised WDRs supercede existing requirements for the affected facility pursuant to Order 93-86 and enrollment of each affected facility in Order 93-86 is terminated upon adoption of revised WDRs.

Tentative Order R9-2003-0003 contains both State and Federal MSW landfill requirements as this is the first complete revision of WDRs for the San Marcos Landfill since the adoption of SWRCB Resolution No. 93-62 and the Regional Board's General Order No. 93-86. If adopted, tentative Order No. R9-2003-0003 would supercede Order No. 92-02 (and addenda thereto) and terminate enrollment of the San Marcos Landfill in Order 93-86 (and addenda thereto).

In addition, tentative Order No. R9-2003-0003 would, if adopted, approve the closure and post-closure maintenance plan, the engineered alternative final cover and modify the monitoring and report program to incorporate the requirements contained in 40 CFR 258, "Subtitle D".

2. BACKGROUND

The San Marcos Landfill ceased receiving waste on March 11, 1997. Subsequently, the County of San Diego, Department of Environmental Health required that an intermediate cover of 12-inches be applied to the San Marcos Landfill. The County of San Diego has been maintaining intermediate cover on the landfill. During the 1998 El Niño rainy season, the intermediate cover on the top deck was washed out, resulting in

the exposure of waste and violation of Order No. 92-02. The Regional Board issued Cease and Desist Order No. 98-39 that required the County of San Diego to ensure a minimum 24-inches of intermediate cover on the top deck of the landfill. The "intermediate cover" is not subject to the prescriptive standards that are used for final landfill cover and may not provide adequate protection against washout and/or erosion during long-term exposure. Subsequently, the Regional Board adopted Addendum No. 1 to Cease and Desist Order No. 98-39 to requiring the County to: 1.) submit a revised Report of Waste Discharge/Joint Technical Document ("JTD") for closure of the San Marcos Landfill and 2.) implement requirements to ensure landfill cover is adequately maintained until the discharger completes final closure of the landfill.

Based on inspections by Regional Board staff, the County of San Diego has adequately maintained the intermediate landfill cover.

In anticipation of the landfill closure, the County of San Diego submitted a closure plan on December 31, 1995. The closure plan contained a re-vegetation plan for the final cover that was the subject of litigation between the City of San Marcos and the County of San Diego. The City of San Marcos and County of San Diego agreed to modifications to the re-vegetation plan in July 2001. The re-vegetation plan specifies that the vegetation for the final landfill cover at the San Marcos Landfill includes native vegetation such as coastal sage scrub and chaparral. This requirement requires that the final cover be a minimum of six feet to accommodate the rooting depths of this vegetation.

The County of San Diego subsequently submitted a revised JTD for the final closure of the San Marcos Landfill that included the modifications to the re-vegetation plan on January 11, 2002. After two more submittals, the Regional Board deemed the JTD complete on July 26, 2002.

3. ENGINEERED ALTERNATIVE FINAL LANDFILL COVER

The final cover for the San Marcos Landfill is an engineered alternative to the prescriptive cover design contained in 27 CCR and 40 CFR §258.60. The engineered alternative final cover system will consist of a monolithic soil cover ranging from five to eight feet in thickness to accommodate the re-vegetation plan dated July 2001. The County of San Diego will import approximately 420,000 cubic yards of soil. Imported soil will be mixed with onsite soil and placed over the landfill. The landfill cover system will be vegetated with a mixture of coastal sage scrub and chaparral. The final cover on the top deck (42 acres) will consist of a 2-feet foundation layer and a 3-feet vegetative soil layer. The side slopes (60 acres) will be covered with 2-feet of foundation layer and 3 to 6 feet of vegetative soil layer.

The final cover will have a temporary overhead irrigation system on the top deck and sideslopes, except a 20-acre area that will be watered by water truck equipped with a

water canon, or equivalent. The irrigation system piping will be above ground and equipped with flow-controlled automatic shutoff valve and rain sensors. The temporary irrigation system will be used, as necessary, to: 1) prepare the top deck for early season imprinting; 2) establish early season surface erosion control vegetation; 3) supplement the annual rainfall during dry periods in the rainy season; and 4) counteract the effects of compaction by encouraging downward root growth during initial development of the vegetation. The temporary irrigation system will be used between early fall and late spring seasons. The discharger estimates that the temporary irrigation system will be used during the first year to establish vegetation but will be available for an additional two years in the event of an exceptionally dry year. The proposed monolithic engineered alternative final cover is intended to reduce the net infiltration of water into the landfill compared with the prescriptive final cover design.

The County of San Diego provided the Regional Board with a demonstration, in accordance with 27 CCR, Sections 20080(b) and (c), which showed the engineered alternative is consistent with performance goals of the prescriptive composite final landfill cover and affords equivalent protection against water quality. Factors considered to form the basis of this finding include:

- a. The installation of a prescriptive composite cover at the San Marcos Landfill is unnecessarily burdensome.
- b. The estimated cost of a prescriptive cover is \$18.2 million, which is substantially more than the estimated cost of an engineered alternative cover of \$10.8 million.
- c. The engineered alternative cover would not promote additional attainment of applicable performance standards. Field experiences with monolithic cover systems and supporting information demonstrate that the engineered alternative cover will meet the performance criteria set by Title 27 and would not adversely affect ground water quality or the established beneficial uses of the Batiquitos or San Elijo Hydrologic Subareas.

Regional Board approval is required for the use of an engineered alternative to prescriptive requirements in 27 CCR for the final landfill cover. The prescriptive State and Federal requirements for closure of MSW landfills may be found in Attachment Nos. 4 (State Regulatory References) and 7 (Federal Regulatory References) to the Executive Officer Summary Report.

4. COMPLIANCE WITH FEDERAL REQUIREMENTS

In compliance with General Order 93-86, the following information/report(s) were submitted to the Regional Board by the County of San Diego:

A. 100-year Floodplain Report [Order 93-86, § 3]

Section 3 of Order No. 93-86 requires the submittal of a report that demonstrates whether or not the San Marcos Landfill is within a 100-year floodplain. The 100-year Floodplain Report indicated that the San Marcos Landfill is located approximately 1.6 miles from the nearest 100-year floodplain.

B. Existing Footprint [Order 93-86, § 4]

Section 4 of Order No. 93-86 requires documentation of the existing footprint of the Ramona Landfill on October 9, 1993. By letter dated September 10, 1993, the County of San Diego transmitted a map that illustrates the existing footprint for the San Marcos Landfill.

C. Wetlands Report [Order 93-86, § 5]

Section 5 of Order No. 93-86 requires the submittal of a report that demonstrates if the San Marcos Landfill contains or adjoins wetlands. The Wetlands Report indicated that there are no wetlands located within the San Marcos Landfill footprint. Therefore, the San Marcos Landfill is in compliance with this requirement contained in 40 CFR 258.

D. *Proximity to Drinking Water Intake Report* [Order 93-86, § 8(a)(1)]

Section 8 of Order No. 93-86 requires the submittal of a report that demonstrates whether or not the landfill is located within one mile of a drinking water intake. This report indicated that there are at least three drinking water wells located within a mile of the landfill. The County of San Diego has complied with this requirement of 40 CFR 258 by implementing a ground water monitoring program in accordance with Monitoring and Reporting Program No. 92-02 and Order No. 93-86 before October 9, 1994.

E. Closure and Post-Closure Maintenance Plan [Order 93-86, § 14]

Section 14 of Order No. 93-86 requires the submittal of a closure and post-closure maintenance plan for the San Marcos Landfill. The County of San Diego submitted a preliminary closure and post-closure maintenance plan on January 10, 1992.

5. GROUND WATER MONITORING

The County of San Diego is required to comply with the monitoring requirements contained in Title 40 Code of Federal Regulations (40 CFR 258). Monitoring and Reporting Program No. R9-2003-0003 updates the monitoring program to incorporate the Federal and State requirements necessary to bring the San Marcos Landfill into compliance with the State and Federal ground water monitoring requirements. The San Marcos Landfill has had a documented release since the adoption of Order No. 92-02. The release from the Unit has remained confined to four monitoring wells.

These monitoring wells are in an Assessment/Corrective Action monitoring Program. The remaining ground water monitoring network consists of six background wells and three compliance wells. These ground water monitoring wells are in detection monitoring. For units that do not have indication of a release, a detection-monitoring program (DMP) is an appropriate program for the purpose of detecting, characterizing and responding to a release. The state and federal requirements, though similar in nature, are outlined separately below.

A.1 State Requirements – Detection Monitoring

CCR Title 27 §20415(a)-(b), and §20420 require the following when implementing a DMP:

- A sufficient number of monitoring points and background monitoring points installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater that has not been affected by a release from the unit.
- A proposed list of monitoring parameters (MPars) for each medium (surface water groundwater and the unsaturated zone) which shall include the physical parameters, hazardous constituents, waste constituents, and reaction products that provide a reliable indication of a release from the Unit, into that medium.
- Routine monitoring (frequency to be determined by the Regional Board) at each monitoring point and background monitoring point, for the MPars listed in the waste discharge requirements (WDRs) for that Unit.
- Periodic (every five years) monitoring of Constituents of Concern (COC), as specified in the WDRs to determine whether there is measurably significant evidence of a release.

A.2 State Requirements – Corrective Action Program

- Implement corrective action measures that ensure that COC's achieve their respective concentration limits at all Monitoring Points and throughout the zone affected by the release, including any portions thereof that extend beyond the facility boundary, by removing the waste constituents or treating them in place.
- Implement a water quality monitoring program to demonstrate the effectiveness of the corrective action program.

• Corrective action measures shall be initiated and completed by the discharger within a period of time specified in the WDRs.

B.1 Federal Requirements – Detection Monitoring

40 CFR Part 258.51 requires the following when implementing a detection monitoring program at a Unit:

- A sufficient number of monitoring points and background monitoring points installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater that has not been affected by a release from the unit.
- The monitoring of all Appendix I constituents, unless an alternative list of inorganic indicator parameters has been established by the Regional Board for use at the Unit.
- A monitoring frequency of semi-annually throughout the active life of the Unit, as well as the post-closure period.

B.2 Federal Requirements – Assessment Monitoring

- Within 90 days of indication of a release from the unit, the discharger must sample and analyze ground water for all constituents identified in Appendix II. For any constituent detected, a minimum of four independent samples from each well must be collected and analyzed to determine background concentrations.
- Establish ground water protection standards for all constituents detected.
- Characterize the nature and extent (horizontal and vertical) of the release by installing additional monitoring wells, if necessary.
- Initiate an assessment of corrective measures.

B.3 Federal Requirements – Corrective Action Program

- Indicate the effectiveness of the corrective action remedy
- Demonstrate compliance with ground water protection standard
- Implement the corrective action remedy

• Take any interim measures necessary to ensure the protection of human health and the environment.

C. Intra-well Monitoring Approach

The ground water quality at the San Marcos Landfill is poor (*i.e.*, naturally occurring Chloride, Sulfate and Total Dissolved Solids at concentrations which exceed the Basin Plan water quality objectives) due to the marine deposits that comprise the bedrock at the site. The following table depicts the approximate background concentrations for monitoring wells **SMGW-17**, **SMGW-24**, **SMGW-26**, **and SMGW-36** for naturally occurring monitoring parameters:

Constituent	Water Quality Objectives	Well SMGW-17	Well SMGW-24	Well SMGW-26	Well SMGW-36
Total Dissolved	500 mg/l	1,206	968	713	1,623
Solids		(+/- 228)	(+/- 156)	(+/- 62)	(+/- 191)
Chloride	250 mg/l	396	169	143	538
		(+/- 113)	(+/- 84)	(+/- 18)	(+/- 108)
Sulfate	250 mg/l	288	321	91	392
		(+/- 95)	(+/- 68)	(+/- 13)	(+/- 90)

Average concentrations of well-specific data for three constituents from the July to October monitoring period during 1998 to 2003 (the past 5 years). Legend: 1,206 = average concentration and (+/- 228) = standard deviation of data reported for that well during the specified time periods.

Ground water concentrations for a given constituent may vary greatly from one well to another, but may not be indicative of a release at the site. In order to distinguish between poor background water quality and an actual release from the site, the intra-well analysis shall be used at all background and monitoring points to analyze each of the monitoring parameters listed in the Order. The intra-well analysis shall be used to compare the results of the current sampling data, of a given monitoring parameter, with the results of at least the previous 10 sampling events (*i.e.*, 5 years at a semiannual monitoring frequency), for the specific monitoring parameter in the affected well. Using this approach allows the discharger to establish site-specific background concentration levels, and the Regional Board to determine whether a measurably significant increase in the concentration of a particular constituent has occurred in a given well.

The State and Federal requirements for water quality monitoring may be found in Attachment Nos. 4 (State Regulatory References) and 7 (Federal Regulatory References) to the Executive Officer Summary Report.

6. STORM WATER DISCHARGES

A. Industrial Storm Water

In 1997, the State Water Resources Control Board (SWRCB) adopted Order No. 97-03-DWQ: "National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 (General Permit), Waste Discharge Requirements (WDRs) for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities."

Attachment 1 to SWRCB Order 97-03-DWQ specifically defines landfills, land application sites, and open dumps as follows:

"Sites that receive or have received industrial waste from any of the facilities covered by this General Permit, sites subject to regulation under Subtitle D of RCRA, and sites that have accepted wastes from construction activities (construction activities include any clearing, grading, or excavation that results in disturbance of five acres or more)."

Order 97-03-DWQ regulates storm water discharges from industrial facilities, including inactive landfills.

Further, where operations have discontinued and significant materials remain on site (such as at closed landfills), the landowner may be responsible for filing a Notice of Intent (NOI) and complying with Order 97-03-DWQ. Landowners may also file an NOI for a facility if the landowner, rather than the facility operator, is responsible for compliance with Order 97-03-DWQ. The complete text of the Statewide Industrial Storm Water permit is available on line at the SWRCB web site at:

http://www.swrcb.ca.gov/stormwtr/industrial.html

B. Construction Storm Water

During earthwork and grading operations associated with the construction of final landfill cover and post-closure maintenance work it is necessary to implement best management practices (BMPs) for erosion control and mitigation of sediment discharges in storm water. During such earthwork and grading operations, landfills may create the same types of erosion and sediment discharges/problems that may associated with large-scale construction sites.

Surface water discharges from earthwork and grading, associated with new construction or related to maintenance of existing cells, should comply with the discharge prohibitions and specifications of State Board Order No. 99 - 08 – DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002, Waste Discharge Requirements (WDRs) for Discharges of Storm

Water Runoff Associated with Construction Activity. The tentative Order requires the discharger to revise their Storm Water Pollution Prevention Plan (SWPPP), and/or update the SWPPP, as necessary to comply with discharge prohibitions and specifications of SWRCB Order No. 99-08-DWQ.

The complete text of the Statewide Construction Storm Water permit is available on line at the SWRCB web site at: http://www.swrcb.ca.gov/stormwtr/construction.html

C. Impaired Water Bodies – 303-d List

The San Marcos Landfill is located in proximity to surface water drainages that are tributary to Escondido Creek, which ultimately discharges into the San Elijo Lagoon. In 1998, the San Elijo Lagoon was identified as an impaired water body for as an impaired waterbody for the following conditions of pollution or nuisance: eutrophic conditions, bacterial indicators, and sedimentation/siltation. The final list of impaired water bodies for the San Diego Region may be found on the SWRCB web site at:

http://www.swrcb.ca.gov/tmdl/303d_lists.html

Failure to implement effective BMPs, during landfill closure and post-closure maintenance period, for control of erosion and sediment discharges may contribute to sedimentation/siltation. This is especially true during the early part of the post-closure period when vegetation cover may be at a minimum. In order to control discharges of sediments into the impaired surface waters of San Elijo Lagoon, it is reasonable ensure that the County of San Diego develops and implements effective BMPs for control of erosion and sediment discharges from the San Marcos Landfill. Developing appropriate BMPs should be based upon consideration of discharge prohibitions and specifications and from the Statewide Construction Storm Water permit (State Board Order No. 99 - 08 – DWQ). This is the purpose for including the Construction Storm Water Permit into the findings and discharge specifications of tentative Order R9-2003-0003.

The selected BMPs for effective erosion control and sediment discharges should be incorporated into the Storm Water Pollution Prevention Plan (SWPPP) prepared for the San Marcos Landfill.

D. Potential Municipal Storm Water Impacts

On February 21, 2001, the RWQCB adopted Order No. 2001-001: "NPDES No. CAS0108758, Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego County, and the San Diego Unified Port District within the San Diego Region." The Order was amended November 15, 2001 by State Water Resources Control Boar Order WQ-2001-15.

Threat to Water Quality Prioritization – Municipal Areas

To establish priorities for oversight of municipal areas and activities required under Order 2001-001, each Copermittee shall prioritize each watershed inventory by threat to water quality and update annually. Each municipal area and activity shall be classified as high, medium, or low threat to water quality. In evaluating the threat to water quality, each Copermittee must consider: 1.) type of municipal area or activity; 2.) materials used; 3.) wastes generated; 4.) pollutant discharge potential; 5.) non-storm water discharges; 6.) size of facility or area; 7.) proximity to receiving water bodies; 8.) sensitivity of receiving water bodies; and 9.) any other relevant factors.

At a minimum, the high priority municipal areas and activities shall include the following Municipal Waste Management Facilities:

- Active or closed municipal landfills;
- Incinerators;
- Solid waste transfer facilities;
- Land application sites;
- Uncontrolled sanitary landfills;
- Corporate yards including maintenance and storage yards for materials, waste, equipment and vehicles;
- Sites for disposing and treating sewage sludge; and
- Hazardous waste treatment, disposal, and recovery facilities.

7. FINANCIAL ASSURANCES

The California Code of Regulations (CCR) Title 27, Chapter 6 requires that operators of solid waste facilities provide financial assurances to the State. The financial assurances shall be provided to the California Integrated Waste Management Board (CIWMB) or the Regional Board for closure (CCR Title 27, § 22207), post-closure maintenance (CCR Title 27, § 22212), and for corrective actions associated with known or reasonably foreseeable releases from the waste management unit (CCR Title 27, § 22222). For your reference, all state regulatory citations cited in the tentative Order are provided in Attachment Nos. 4 (State) and 7 (Federal) to this agenda item.

A. Financial Assurances for Closure and Post-Closure

The County of San Diego has provided the CIWMB a pledge of revenue agreement to comply with post-closure funding requirements of CCR Title 27, § 22212 (see Executive Officer Summary Report Attachment No. 11 for this agenda item).

After consulting with the State Board OCC counsel; the Regional Board staff determined that the financial assurances for closure and post-closure maintenance

were inadequate. The existing financial assurances do not provide the Regional Board with direct access to funds that may be necessary to complete closure and post-closure tasks, in the event that the County of San Diego is unable or unwilling to do so in the future.

B. Financial Assurances for Reasonably Foreseeable Release

The County of San Diego has not provided an acceptable instrument for financial assurances for reasonably foreseeable release from the San Marcos Landfill.

27 CCR § 22222 states that the Regional Board must require the County to establish and irrevocable fund (or provide other means) pursuant to the CIWMB-promulgated sections of 27 CCR but with the Regional Board named as the beneficiary.

After consulting with the State Board OCC counsel, the Regional Board staff determined that the financial assurances for reasonably foreseeable release were inadequate. The financial assurances for corrective action do not provide the Regional Board with direct access to funds that may be necessary to complete corrective action tasks, in the event that the County of San Diego is unable or unwilling to do so in the future.

Findings No. 27 establishes the minimum level of financial assurances required for the San Marcos Landfill. The amount of the required financial assurances were provided by the County of San Diego in their completed JTD (dated June 2002).

Finding No. 28 establishes that financial assurances that do not include direct access by the Regional Board and,

Pursuant to the Water Code [§ 130001]:

"It is the intent of the Legislature that the state board and each regional board shall be the principal state agencies with primary responsibility for the coordination and control of water quality."

Further, pursuant to the Public Resources Code [§ 43101(c)]:

"The state water board and regional water boards shall be the sole agencies regulating the disposal and classification of solid waste for the purpose of protecting the waters of the state, consistent with Section 40055, and the board and the certified local enforcement agencies shall regulate all other aspects of solid waste disposal within the scope of their appropriate regulatory authority."

In addition, the Public Resources Code Section 43101(c)(13) requires:

"The state water board or the appropriate regional water board shall have access to the financial assurance funds for closure and postclosure activities and to financial assurance funds for corrective action, as necessary, to address water quality problems, if the owner or operator has failed to implement the required closure and postclosure activities or corrective action activities...."

In the absence of actions by the County of San Diego to implement closure, post-closure maintenance or reasonably foreseeable release, the Regional Board would require direct access to funding to fulfill its statutory role and effectively implement measures for the protection of water quality. The County of San Diego must provide financial assurances that are structured to allow the Regional Board to directly access funds, upon a finding that the County is unable or unwilling to implement the required actions, to complete closure, post-closure maintenance or corrective actions for the protection of water quality. The State and Federal Regulatory Requirements for Financial Assurances may be found in Executive Officer Summary Report Attachment Nos. 4 and 7, respectively. State statutory requirements for State and Regional Board access to financial assurances funds may be found in Executive Officer Summary Report Attachment Nos. 6.

Provision No. 5 of tentative Order R9-2003-0003 requires the County to comply with the financial assurance requirements of 27 CCR and provide financial assurances that are acceptable to the Regional Board. The County would be required to provide acceptable Financial Assurances for closure, post-closure, and corrective actions within a period of 1 year from the date the Regional Board adopts tentative Order No. R9-2003-0003.

8. COMPLIANCE WITH CEQA

On July 17, 2002, the County of San Diego approved an Environmental Impact Report for the closure of the San Marcos Landfill in accordance with California Environmental Quality Act (Public Resources Code Section 21000 *et seq*). The project, as approved, will not have a significant impact on water quality.

9. STAFF RECOMMENDATION

The Regional Board staff recommends adoption of tentative Order No. R9-2003-0003 and tentative Monitoring and Reporting Program R9-2003-0003.